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(54) A container for cooling articles such as cans

(57) A container for holding articles such as cans (C) in a cooled condition has a can compartment (1) which receives cooled air from cooling apparatus (20) accommodated in a compartment (2) and which consists of an evaporator (22) of refrigeration apparatus (30) and through which air is driven by a fan (25). The cooled air is mainly directed along a tunnel (4) to the forward part of the can compartment (1) and is directed by baffling (140) for cooling contact with the cans (C). The cans (C) are supported by their end rims so as to expose the main body of the cans for direct contact with the cooling air, such support being provided by side tracks which are inclined for gravity feed of the cans (C) to the front door (16) ready for withdrawal.

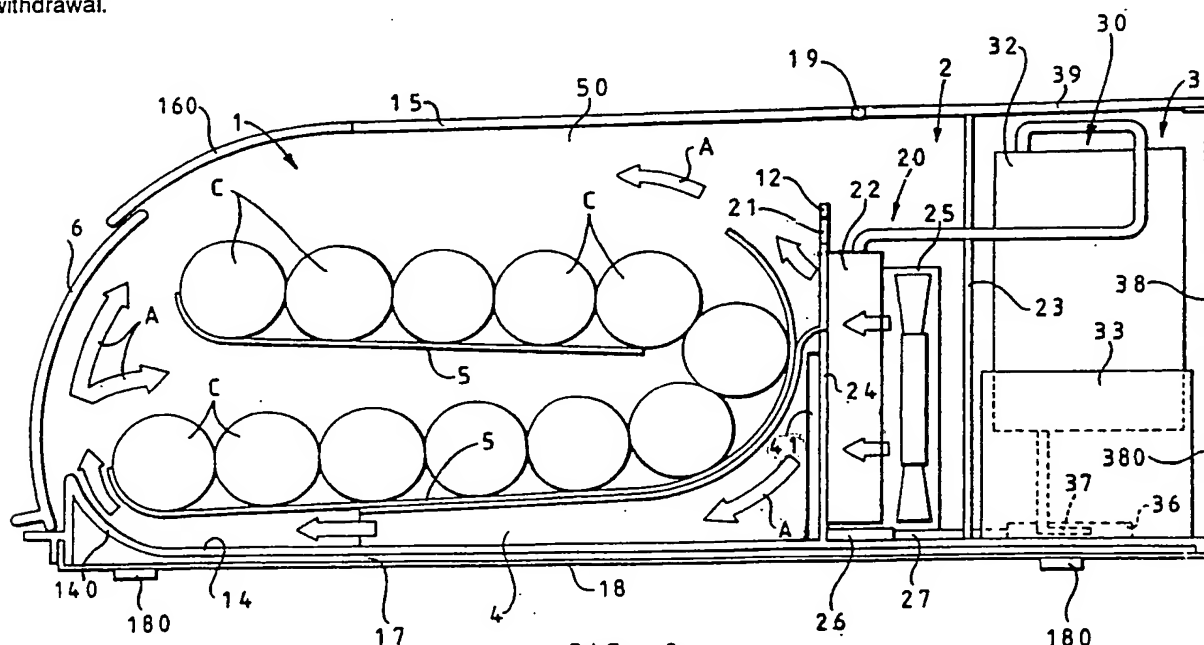
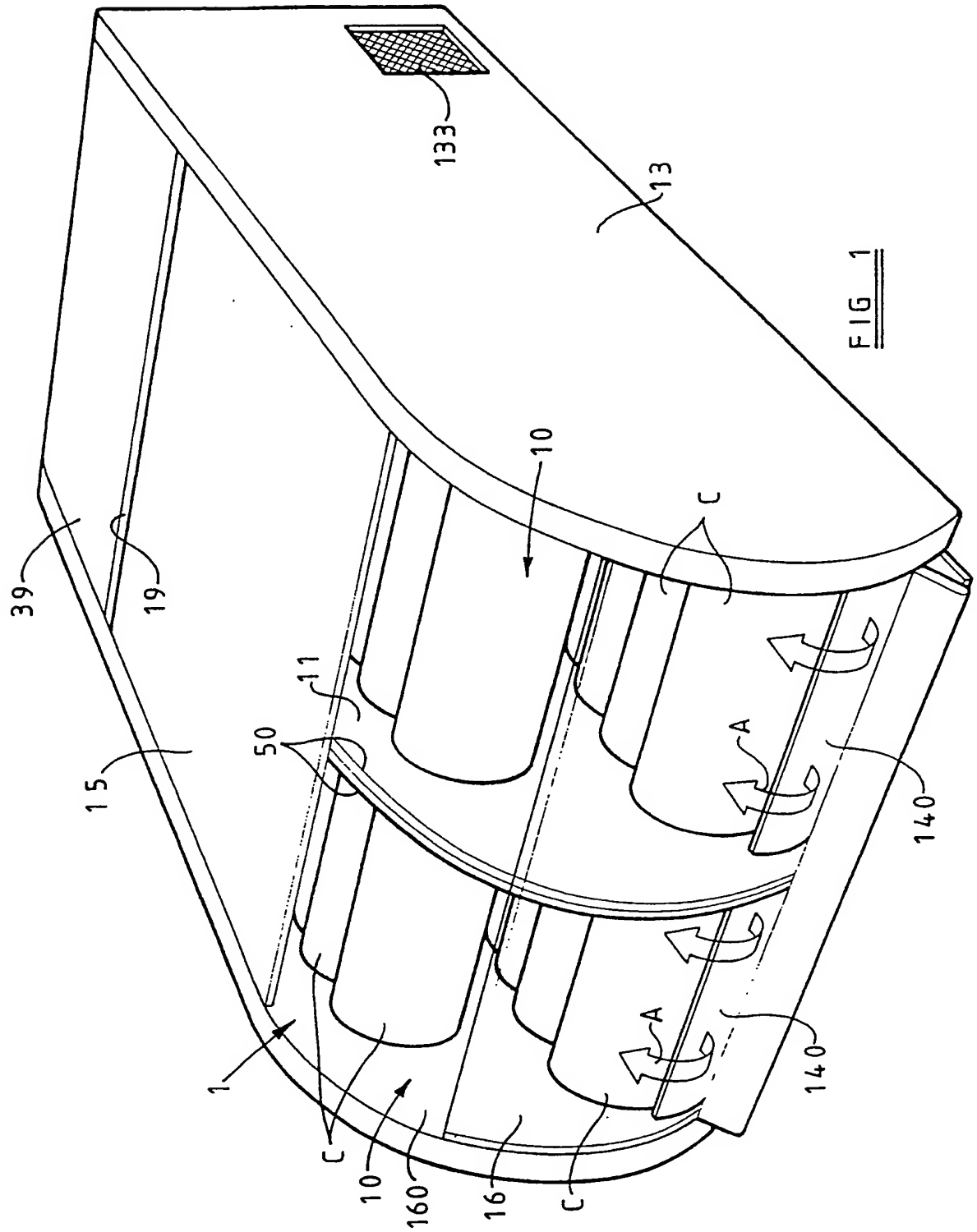


FIG 2

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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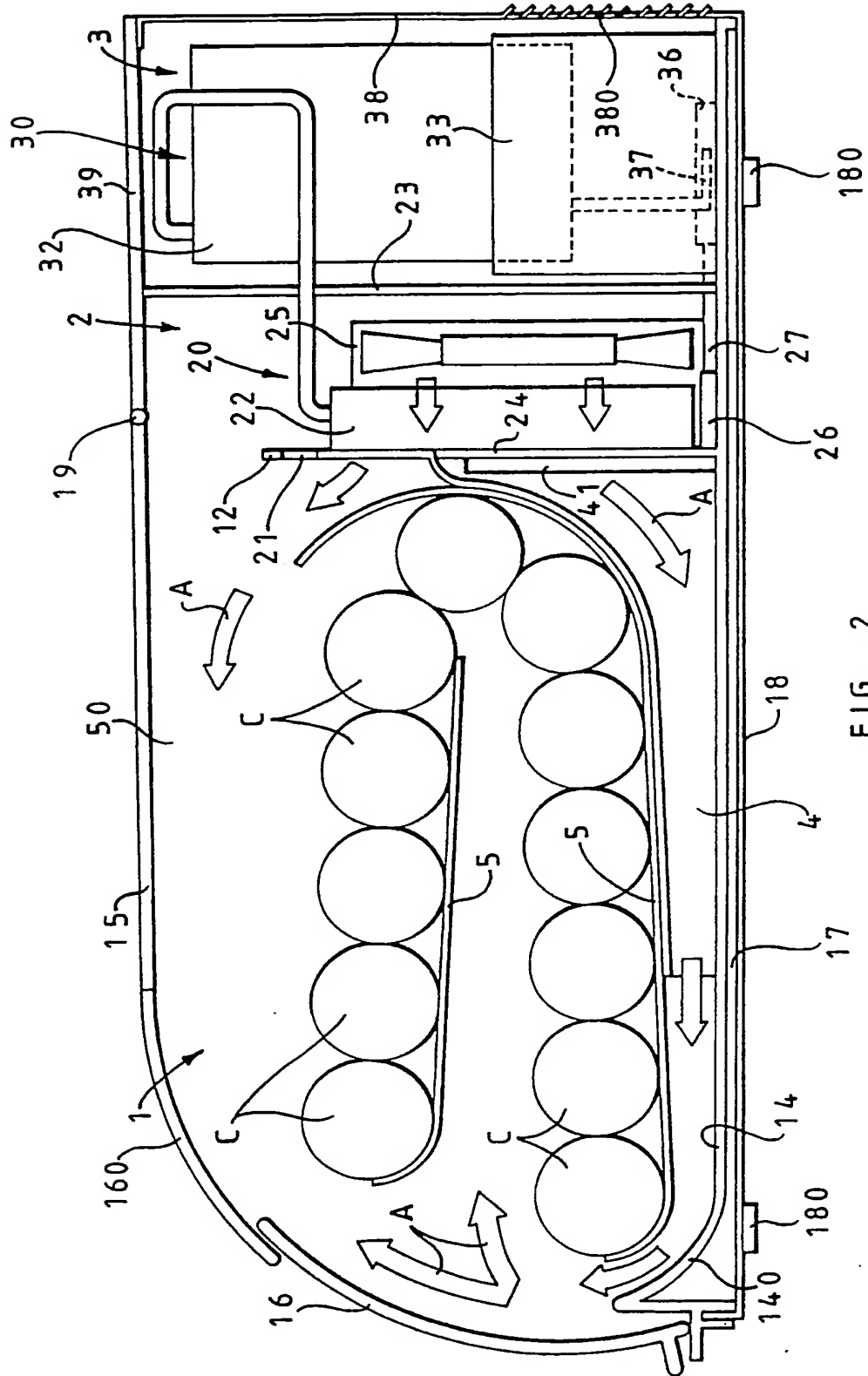


FIG. 2

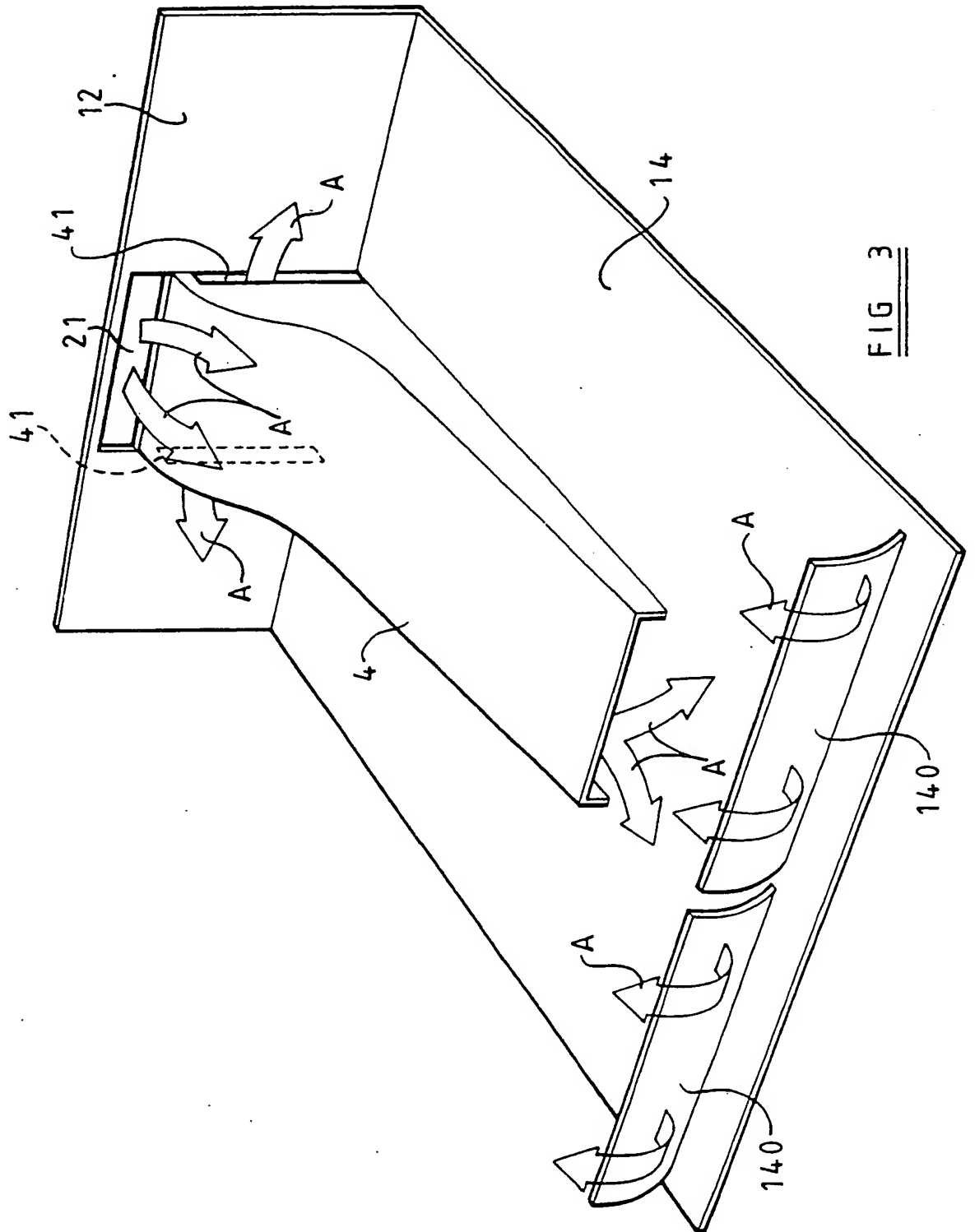


FIG. 3

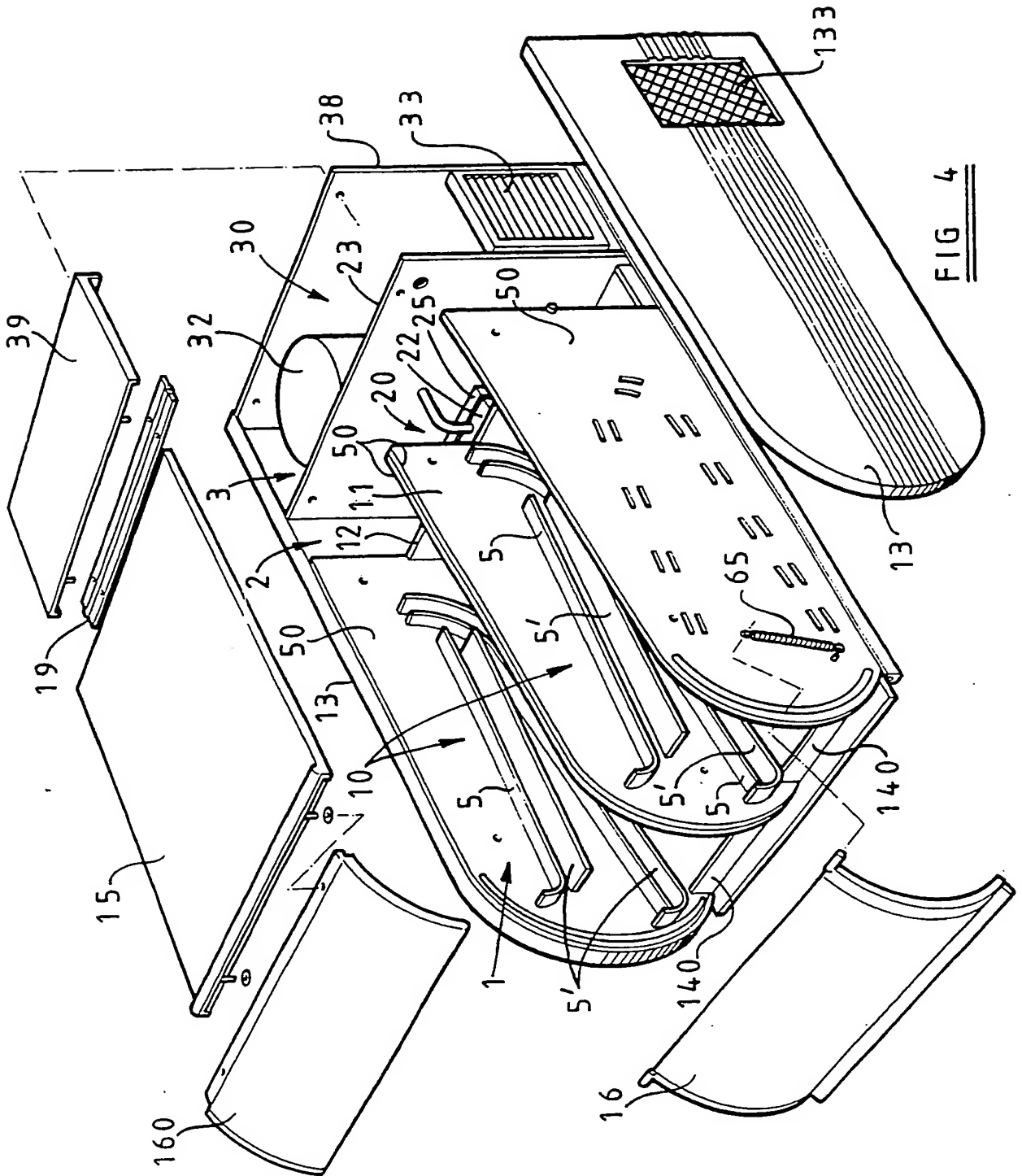


FIG 4

Title - COOLING CONTAINER

The present invention relates to a cooling container.

One object of the invention is to provide a cooling container or cabinet primarily for items such as drink or food products especially, but not exclusively, canned drinks in a cooled condition.

Another object of the invention is to provide a cooling container which also serves as a dispenser from which items such as cans can be readily removed as required.

According to the present invention a cooling container for containing articles such as cans or packages of drink or food is characterised by the container, or a part or compartment thereof for receiving such articles, being provided with one or more inlets for receiving cooled air directed therein from cooling apparatus, said container part or compartment being provided with ducting and/or guiding means for directing or distributing the cooled air in relation to said articles supported within the container in order to effectively cool them.

A practical form of the container for holding cans of drink or food is shown by way of example in the accompanying drawings in which:-

Figure 1 is a front perspective view of the container,

Figure 2 is a cross sectional side view showing can support and guided cooling air flow,

Figure 3 is a detail front perspective view further showing

guided cooling air flow, and

Figure 4 is a partially exploded front perspective view of the container showing constructional details.

Some detail variation occurs between the figures of the drawings.

The container or cabinet mainly provides a front or can compartment 1 e.g. for containing cans C of alcoholic or non-alcoholic drinks whilst intermediate and rear compartments 2, 3 respectively accommodate air cooling and refrigeration apparatus 20, 30. The basic construction of the container is shown consisting of side and floor panels 13, 14 together with a top lid 15 and a front door 16 which latter is preferably transparent for display of cans C in the front compartment 1. The door 16 is of roll-top form having a curved sliding action. Constructional details of the container are described later.

The air cooling apparatus 20 in the compartment 2 comprises an evaporator 22 and a motor driven fan 25, the evaporator 22 being positioned against a wall 12 between the compartments 1, 2 which wall 12 does not extend for the full interior height of the latter. However a rear wall 23 between the air cooling compartment 2 and refrigeration compartment 3 effectively seals the refrigeration compartment from the cooling and can compartments 2, 1.

In use, the refrigeration apparatus 30 maintains the evaporator 22 in a cold condition and the fan 25 directs air through or across the evaporator 22. Cooled air then passes through an inlet 24 in the dividing wall 12 into a duct or tunnel 4 extending along the floor panel 14 towards the forward end of the front can compartment 1.

A further opening 21 is also shown provided in the wall above the tunnel inlet 24 to direct cool air to the upper part of the can compartment 1. Thus as shown by the arrows A in Figure 2 the cool air is distributed or circulated about cans C stored on guideways or tracks 5 within the front compartment 1 so as to effectively cool or chill them. A forward baffle or baffles 140 also deflect cool air upwardly as it emerges from the front end of the tunnel 4 whilst the rear of the latter is also shown provided with side outlet slots 41 (see Figures 2 and 3). The baffles or deflectors 140 are shown integrally formed with the floor panel 14 (Figure 2). Circulation of air back to the evaporator 22 is effected over the wall 12.

*Recessed*

As shown in Figure 2 upper and lower rows or banks of horizontal cans C are supported by the guideways 5. At least the upper guideways are inclined so that gravity rolling or sliding feed of the cans C eventually towards the forward lower end of the can compartment 1 is effected as and when the foremost lower can or cans is or are removed through the open door 16.

By opening the top lid 15 the can compartment 1 can be loaded with a supply of cans C which are placed on the upper guideways 5 and roll down to the lower guideways as loading progresses.

As will be seen in Figures 1 and 4 the can compartment 1 is divided into two sub compartments 10 by a central dividing partition 11 also provided with guideways 5 so that two sets or rows or banks of cans C can be accommodated alongside one another as clearly shown in Figure 1. Access can be gained to both sets of cans in the sub compartments 10 through the open door 16 and likewise for loading purposes through the open lid 15. A larger or wider container could be further sub-divided in this way.



On upward opening movement the door 16 slides under an upper curved cover 160 which is preferably also transparent and is carried by the forward end of the hinged lid 15. To ensure a downward self closing action for sealing the interior of the can compartment 1 against loss of cold air, the door 16 is preferably spring loaded such as by tension springs one at each side of the container and of which one is visible at 65 in Figure 4. If desired the cover 160 may be hinged to the lid 15 in order to provide loading access into the compartment 1 in which case lid 15 need not be hinged.

The refrigeration apparatus 30 is thermostatically controlled in response to the required cool temperature in the can compartment 1. A defrost control may also be provided to periodically switch off the apparatus and enable the evaporator 22 to defrost.

The refrigeration apparatus 30 is shown comprising essentially a compressor 32 communicating with the evaporator 22 and a condenser 33 which latter registers with a meshed or other suitable air inlet opening 133 in the adjacent side panel 13. Air flow through the condenser 33 discharges as warm air through a louvred outlet opening 380 in a back wall 38 of the rear compartment 3.

Condensate from the evaporator 22 is collected by a tray 26 disposed underneath the evaporator. The condensate is passed by a pipe 27 from the tray 26 to a receptacle 36 situated beneath the compressor 32. The receptacle 36 receives a warming element 37 from the outlet of the compressor 32 in order to re-evaporate the condensate which vapour is removed with the warm air flow through the rear opening 380.

Constructional details of the container and materials employed

may vary according to requirements. Thus the floor panel 14 is shown resting on a layer of heat insulating material 17 interposed between it and a metal base sheet 18. The rear end of the sheet 18 is upturned to provide the rearmost wall 38, to the refrigeration compartment 3. Feet 180 are provided on the underside of the base sheet 18.

The lid 15 is shown hinged at 19 to a rear top cover 39 of the refrigeration compartment 3. Panels 13 and similar exterior members of the container and also interior structural members may be of suitable plastics material such as ABS (Acrylonitrile-butadiene-styrene) or acrylic as appropriate, and can be decoratively finished where required.

In the can compartment 1, the side tracks 5 are shown integrally or otherwise carried by inner wall or frame supports 50 alongside respective outer panels 13. Corresponding inner tracks 5 are directly carried by back to back wall supports 50 providing the partition 11.

Referring to Figure 4 relatively laterally stepped tracks 5, 5' are provided on the side and inner supports 50 for accommodating cans of different length (i.e. upright height). Thus cans of greater length are able to roll by their edges or rims on the tracks 5, and are endwise located thereon by adjacent faces of the supports 50. Shorter cans are able to roll on the tracks 5' and are guided against endwise movement by the edges of the tracks 5.

The support of the cans by their edge portions or rims on the tracks 5, 5' leaves the main body or side of each can substantially fully exposed for direct contact with the cooling air.

In an alternative arrangement guideways of complementary step formation may be employed for accommodating cans of different length on appropriate step faces of the guideways and in the case of shorter cans would also be guided against endwise movement by riser portions of the step formation.

It will be appreciated that the containers can be conveniently used in various localities either individually or collectively e.g. stacked or side by side according to the quantity and/or range of products to be displayed and dispensed.

It is also to be understood that a wide variety of commodities can be made available by the container or containers in canned or other suitably packaged form for rolling and/or sliding movement to the door 16.

CLAIMS

- 1 A cooling container for containing articles such as cans or packages of drink or food characterised by the container, or a part or a part or compartment thereof for receiving such articles, being provided with one or more inlets for receiving cooled air directed therein from cooling apparatus, said container part or compartment being provided with ducting and/or guiding means for directing or distributing the cooled air in relation to said articles supported within the container in order to effectively cool them.
- 2 A cooling container according to claim 1 wherein the container or a part or compartment thereof is closed by openable for the removal of one or more cooled articles therefrom and for loading the container or compartment with fresh articles.
- 3 A cooling container according to claim 1 or 2 wherein the cooling apparatus is accommodated within the container and includes means for driving cooled air into a part or compartment of the container which receives said articles.
- 4 A cooling container according to claim 3 wherein the cooling apparatus comprises an evaporator of refrigeration means through which air is directed by a motor driven fan for passage as cooled air into the part or compartment of the container which receives said articles.
- 5 A cooling container according to claim 3 or 4 wherein the cooling apparatus is accommodated in a rear part or compartment or compartments of the container in relation to

a forward article receiving part or compartment of the container.

- 6 A cooling container according to any of the preceding claims wherein the container or article receiving part or compartment thereof is provided with at least one duct or tunnel for passing cooled air directed along it to a forward part of the container or compartment for cooling contact with articles supported therein.
- 7 A cooling container according to any of the preceding claims wherein the container or article receiving part or compartment thereof is provided with guiding or baffle means for directing cooled air towards articles supported within the container or compartment.
- 8 A cooling container according to claims 6 and 7 wherein the guiding or baffle means is arranged to direct cooled air emerging from the duct or tunnel towards articles supported within the article receiving part or compartment of the container.
- 9 A cooling container according to any of the preceding claims wherein that part or compartment for receiving articles such as cans of drink or food supported therein is provided with support means for supporting the articles or cans by their end portions whereby the main bodies or sides of the articles or cans are exposed for direct contact with the cooling air.
- 10 A cooling container according to any of the preceding claims wherein provision is made for the return of air after cooling contact with articles supported within said

part or compartment of the container to the cooling apparatus for re-cooling and recirculation through said container part or compartment.

- 11 A cooling container according to any of the preceding claims wherein that part or compartment of the container for receiving articles supported therein is divided or partitioned into two or more sub compartments in a side by side manner and each for receiving said articles.
- 12 A cooling container according to any of the preceding claims wherein the article receiving part or compartment or each sub compartment of the container is provided with side trackways having some inclination, for the horizontal support of the articles such as cans of drink or food for their gravity feed movement to a withdrawal position from the container.
- 13 A cooling container according to claims 9 and 12 wherein the trackways are arranged to support articles such as cans by their end portions whereby the main bodies or sides of the articles or cans are exposed for direct contact with the cooling air.
- 14 A cooling container according to claim 11 or 12 wherein the trackways are of laterally stepped or like form for the reception and end location of articles or cans of different length (i.e. upright height).
- 15 A cooling container for containing articles such as cans or packages of drink or food when substantially as herein described with reference to the accompanying drawings.

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